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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,572	04/15/2004	Michael J. North	051583-0295	8672
27433	7590	09/17/2007		
FOLEY & LARDNER LLP 321 NORTH CLARK STREET SUITE 2800 CHICAGO, IL 60610-4764			EXAMINER SILVER, DAVID	
			ART UNIT 2128	PAPER NUMBER
			MAIL DATE 09/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/825,572

Applicant(s)

NORTH ET AL.

Examiner

David Silver

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

1. Claims 1-15 were originally presented for examination.
2. Claims 1-12 were rejected.
3. Claims 13-15 were cancelled and therefore withdrawn from consideration.
4. Claims 1-12 are currently pending in Instant Application.
5. The Instant Application is not currently in condition for allowance.

Priority

6. Priority is not claimed.

Response to Arguments

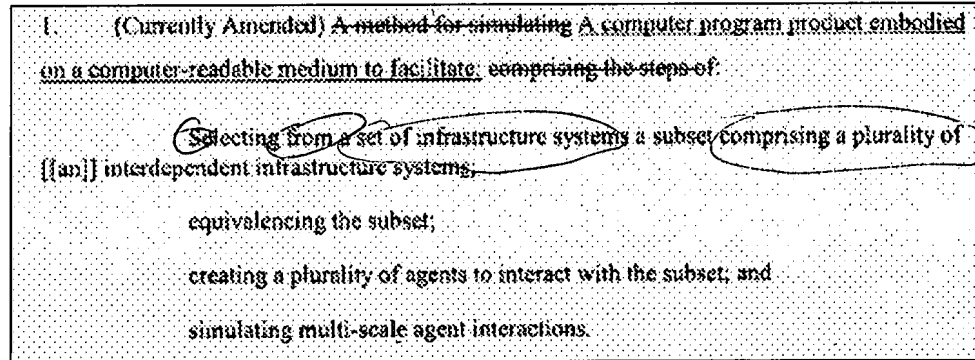
Examiner Notes Regarding Applicants' Amendments

Applicants are reminded that markings are required that show all changes made to all claim. See MPEP 714.II.C. The following is an example of what appears to be a clerical oversight showing changes that were not identified.

Submitted to Office 4/15/2004:

<p>1. A method for simulating interdependent infrastructures, comprising the steps of:</p> <p style="padding-left: 40px;">selecting a subset of an interdependent infrastructure system; equivalencing the subset; creating a plurality of agents to interact with the subset; and simulating multi-scale agent interactions.</p>

Amended as of 7/3/07:



Note that "S" in the word selecting is now capitalized. The first limitation has been changed substantially to include "from" and "plurality of interdependent infrastructure systems". These changes are to be marked in accordance with MPEP 714.

Future responses failing to properly identify amendments may be refused entry as having omissions / being non-compliant amendments.

Response: 35 U.S.C. § 101

7. Background:

Claims 1-15 stand rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

8. Applicants argue:

8.1 "In response to the Examiner's comments, Applicant has amended claims 1-7 to more particularly describe the system and hardware components required for use of this invention and to clarify that the claims are directed to the system, including a computer program product embodied on a computer-readable medium, and not merely software. Applicants respectfully submit that the rejection has been overcome and the claims stand in condition for allowance.

8.2 Regarding claims 8-12, Applicants note that the claims are directed to an "apparatus". The Examiner rejection has not made it clear how the claims directed to an apparatus having series of components is in fact software per-se. As such, Applicants respectfully request the rejection be withdrawn."

(Remarks: page 6)

9. Examiner Response:

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9.1 Regarding subsection 1 *supra*, Applicants' arguments have been considered but are unpersuasive.

The computer program product and the computer-readable medium are recited in the preamble of the claim, which in this instance is not given patentable weight because it is not necessary for the life, meaning and vitality of the claim. The claims remain drawn to software, *per se*.

9.2 Regarding subsection 2 *supra*, Applicants' arguments have been considered but are unpersuasive.

Specifically, although the word "apparatus" is used in the preamble, the claims are merely drawn to software elements. Specifically, the "selector", "equivalencer", "plurality of agents", and "simulator" are all software components and do not have hardware. For example, agents are software (PGPUB paragraph 0014, 0046). Likewise, the other elements are merely software components. Additionally, merely adding the term "apparatus" to the preamble of a claim does not make claim statutory.

Rejections **maintained**.

Response: 35 U.S.C. § 102

10. Background:

Claims 1-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by TOPCCIP's "TAB B, Preliminary Research and Development Roadmap for Protecting and Assuring the Energy Infrastructure" ("TAB B").

11. Applicants argue:

11.1 "Turning to the specific limitations of the claims, the TOPCCIP reference fails to teach "[s]electing from a set of infrastructure systems a subset comprising a plurality of interdependent infrastructure systems;" as claimed in the currently amended claim 1. The present application and the claims specifically require that the system is acting on more than one infrastructure. One of ordinary skill in the art would appreciate, particularly in light of the Applicants usage of the term (paragraphs [0003] and [0004] among others), that infrastructure as used in the claims refers to a single infrastructure such as the electrical distribution grid or the interstate natural gas pipeline system or a local distribution system for electricity. Such systems are referred to in the art as infrastructures and considered infrastructures in their own right. The TOPCCIP reference is consistent with this usage and treats (see, for example, the image on the front cover depicting various individual

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infrastructures). The Examiner has merely cited to lists of infrastructures contained in the TOPCCIP reference. For example, the citation to page 18 of Tab B of the TOPCCIP reference is misplaced, as it is clear from both the heading and the context that the infrastructure being referred to is the national energy grid. The reference to interconnection of the power system does not refer to the interconnection of different infrastructures (such as the electric grid and interstate gas pipelines) but rather to the interconnection of different individual utility companies acting as either transmission entity (i.e. from power plant to substation) or as a distribution entity (from substation to end user).” (Remarks: page 7-8; emphasis by Examiner)

12. Examiner Response:

Applicants’ arguments have been considered but are unpersuasive and traversed as follows.

12.1 In response to Applicant’s argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., infrastructure systems being electrical distribution grid or the interstate natural gas pipeline system or a local distribution system for electricity) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12.2 Additionally, Applicants’ attention is drawn to, for example, **(page B-15)** which recites, in part:

“To minimize costs and increase efficiency, many companies are expanding their automation and networking systems dramatically and linking their control, administrative, and business information systems. Cyber threats represent unique vulnerabilities to these infrastructures. As these systems move to open-system architectures that use standard protocols and interconnected systems, hackers find it easier to access most systems because they are based on personal computers.”

A power system infrastructure is contains infrastructure systems within, as clearly demonstrated and disclosed above. Each of the control, administrative, and business information systems are infrastructures in their own right and are indeed interconnected as disclosed above.

13. Applicants argue:

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13.1 "In addition, the claims require "equivalencing the subset." Once again, the TOPCCIP reference fails to teach this limitation. As discussed above, the TOPCCIP reference does not teach the use of a subset of infrastructures but rather looks within a single infrastructure and thus no subset exists. Furthermore, the cited portion of Tab B (page 48) is referring to the calibrating of a theoretical model to the actual electrical power system. This is not equivalencing a subset of infrastructures, it is making sure that a model of an individual distribution or transmission companies system (a part of a larger infrastructure) is accurate.

13.2 While the TOPCCIP reference does include the term "equivalencing", it in fact states "[r]esearch on network equivalencing is also needed." Applicants fail to see how such a clear assertion that something is not known in the art can be the basis for a rejection." (Remarks: page 8 bottom to page 9 top)

14. Examiner Response:

14.1 Regarding subsection 1 *supra*, the Applicants' arguments are based on features not claimed. See section 12.1 above.

14.2 Regarding subsection 2 *supra*, Applicants' arguments are conclusionary and fail to provide patentable distinctions over cited reference from the claimed invention. Additionally, the sentence before the Applicant-quoted sentence states that "The August 1996 western outage revealed that system models had not been adequately calibrated or tested for the unusual circumstances and event sequence that led to the outage.". The calibration, whether adequate or inadequate correlates to the "equivalencing". Applicants have merely provided conclusionary statements that the anticipatory statements of the references do not anticipate the Claimed Invention.

15. Applicants argue:

15.1 "Claim 1 further requires, "creating a plurality of agents to interact with the subset;" which is also not taught in the TOPCCIP reference. As already discussed, the TOPCCIP reference is related to the analysis of intradependencies within a single infrastructure. No subset representing a plurality of

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infrastructures is taught and thus no agents are described as interacting with such a subset. At best the TOPCCIP reference teaches that it would be desirable to have some form of automation within an infrastructure (not between infrastructures). The teachings of the cited page 23 and the preceding page 22 make it clear that the TOPCCIP reference is referring to a reasoning element for handling a infrastructure.

Finally, Claim 1 requires "simulating multi-scale agent interactions." Again, for at least the reasons discussed above, the failure of the TOPCCIP reference to contemplate interdependencies between infrastructures means one of ordinary skill in the art would appreciate that the simulating of multi-scale agent interactions in regard to multiple infrastructures would not be possible.

For at least the above reasons, the rejection of the claims should be withdrawn and Applicants request allowance of the claims." (Remarks: page 9)

15.2 Statements from page 9 bottom to page 11 top are based on the subject matter which is not claimed.

16. Examiner Response:

To not belabor the issue, Applicants' attention is drawn to the Examiner Response sections above regarding arguments of unclaimed subject matter. The claims are given their broadest most reasonable interpretation consistent with the Specification; however, the claimed subject matter is not limited by the Specification because limitations from the Specification are not read into the claims

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

17. Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

17.1 In this instance, absent an explicit and deliberate definition in the specification that the product includes an appropriate medium or hardware elements, the claims are directed to software, *per se*.

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The elements of claim 8, for example, are disclosed to possibly include software elements, *per se*.

Therefore, they are not drawn to structural hardware elements; thus, they are drawn to non-

statutory subject matter. **(Specification [0007] [0006] [0046])**

MPEP 2106 recites, in part:

"...USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete." (emphasis added)

17.2 The method claims do not produce a useful, tangible, and concrete final result. The steps of the method claims do not produce a useful, tangible, and concrete result. They merely recite a software algorithm, *per se*, which, for example, does not display, store, or otherwise provide a useful tangible output. Note exemplary claim 1 which only recites software steps and does not produce a useful tangible and concrete final result. See MPEP 2106 [R-5] (partially recited above).

17.3 The computer program product and the computer-readable medium are recited in the preamble of the claim, which in this instance is not given patentable weight because it is not necessary for the life, meaning and vitality of the claim. The claims remain drawn to software, *per se*.

18. Although the word "apparatus" is used in the preamble, the claims are merely drawn to software elements. Specifically, the "selector", "equivalencer", "plurality of agents", and "simulator" are all software components and do not have hardware. For example, agents are software (PGPUB paragraph 0014, 0046). Likewise, the other elements are merely software components. Additionally, merely adding the term "apparatus" to the preamble of a claim does not make claim statutory.

19. The claims remain drawn to non-statutory subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by TOPCCIP's "TAB B,

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Infrastructure" ("TAB B").

TAB B discloses: 1. a computer program product embodied on a computer-readable medium to facilitate:

Selecting from a set of infrastructure systems a subset comprising a plurality of interdependent infrastructure systems (**page B-1 middle, B-18 middle, B-57 middle**);

equivalencing the subset (**page B-48 bottom**);

creating a plurality of agents to interact with the subset (**TAB B: B-23 top**); and

simulating multi-scale agent interactions (**B-21 middle, B-25 bottom, B-41 middle, B-47 bottom half**).

TAB B discloses: 2. The product of claim 1, wherein the subset is being selected to represent a geographic region (**B-19 middle, B-32 middle, B-35 top half, B-49 top half, B-50 top half**).

TAB B discloses: 3. The product of claim 1, further comprising the steps of:

selecting components for two way analysis, and wherein the simulation occurs across concurrent time (**B-25, B-5 top, B-9 top, B-20 bottom; Table B.4 item 6.2**).

TAB B discloses: 4. The product of claim 1, further comprising the steps of:

selecting a plurality of infrastructures to simulate; and connecting the infrastructures, including the steps of screening candidate interconnections (**B-49 bottom half: screening tools**); and assigning candidates a likelihood of connection (**B-11 top**).

TAB B discloses: 5. The product of claim 1, wherein the equivalencing step includes the steps of:

identifying connections extending outside of the subset (**B-3 middle; B-54 bottom half**); and calculating flow limit for each connection extending outside the subset (**B-71 middle; B-72 middle**).

TAB B discloses: 6. The product of claim 1, wherein the creating agents step includes the steps of:

creating agents from templates and data for a infrastructure; and creating agents at equivalenced connections (**B-48 bottom; Table B.6 item 1.4; B-50 top**).

TAB B discloses: 7. The product of claim 1, wherein the simulating step includes the steps of:

advancing agent conditions through time; re-equivalencing the infrastructure (**B-5 middle**); and continuing the simulation until a steady state is achieved (**B-47 middle**).

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As per claims 8-15, note the rejection of claims 1, 4-7, 1, 5, 7 above, respectively. The Instant Claims recite substantially same limitations as the above-rejected claims and therefore rejected under same prior-art teachings.

Conclusion

21. All claims are rejected.

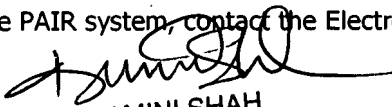
22. The Instant Application is not currently in condition for allowance.

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 10am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at


KAMINI SHAH
SUPERVISORY PATENT EXAMINER

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